PDB17

MODELING THE COST-UTILITY OF REDUCED HYPOGLYCEMIA AND WEIGHT GAIN AMONG TYPE 2 DIABETES PATIENTS NEWLY INITIATED ON BASAL INSULIN: A CASE STUDY OF DETEMIR AND NPH

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OBJECTIVES: To estimate clinical and economic outcomes 5 years after initiating add-on insulin detemir (IDet) or neutral protamine Hagedorn insulin (NPH) therapy among type 2 diabetes patients taking metformin ± glimepiride. **METHODS:** Baseline characteristics and treatment effect data were taken from a multicenter, 26-week, randomized controlled trial among insulin naïve type 2 subjects (mean HbA1c: 8.56%; age: 60.8 years). Reductions in HbA1c were similar, though statistically significant improvements in body weight (1.6 kg difference; $p < 0.001$) and reduction of intra-day variation of fasting plasma glucose ($p < 0.008$) favoring IDet were observed. Additionally, risk of all hypoglycemia with IDet was 47% lower ($p < 0.001$), and risk of nocturnal hypoglycemia was 55% lower ($p < 0.001$). A published and validated computer simulation model of type 2 diabetes was used to project differences in quality-adjusted life expectancy (QALE) and direct medical costs (pharmacy plus complication costs) over a 5 year time horizon. Costs were taken from published sources in the US. Clinical outcomes and costs were discounted at 3% annually. Sensitivity analyses were performed. **RESULTS:** Initiation of IDet therapy was projected to improve QALE by 0.17 ± 0.09 QALYs versus NPH after 5 years. Treatment with IDet was associated with slight reductions in the relative risk for major diabetes-related comorbidities. Direct medical costs were higher in the IDet treatment group than in the NPH group, leading to an ICER of $25,368 per QALY gained. Acceptability curve analysis indicated that there was a 94% probability of IDet being cost-effective versus NPH with a willingness to pay threshold of $50,000 per QALY gained. The results were most sensitive to variation in hypoglycemic event rates. **CONCLUSION:** Among insulin-naïve type 2 patients, initiation of IDet was estimated to improve quality-adjusted life expectancy and would be considered good value for money by commonly accepted standards in comparison to NPH.

PDB18

ECONOMIC BURDEN OF DIABETES ATTRIBUTABLE TO OVERWEIGHT AND OBESITY AMONG U.S. ADULTS

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OBJECTIVES: To estimate the direct medical care expenditures of diabetes attributable to overweight and obesity. **METHODS:** Cross-sectional analyses were performed with 25,346 adults from the 2002 Medical Expenditure Panel Survey (MEPS). Diabetic patients were identified if they reported having diabetes in the medical conditions file of MEPS. Diabetic patients were classified as normal weight (body mass index (BMI) ≥18.5 to <25), overweight (BMI 25 to <30), or obese (BMI ≥ 30) based on their BMI. Medical costs of diabetes were estimated using a two-part model with adjustment for study variables such as age, gender, BMI, etc. Medical costs of diabetes attributable to overweight or obesity were respectively estimated by the prevalence of diabetes and the incremental medical costs in people with and without diabetes. Data were analyzed using SAS and SUDAAN statistical softwares to adjust for the complex sample design. **RESULT:** The age-adjusted prevalence of diabetes in the US was 6.5% (13.4 million(M) people) representing 3.4% (2.5 M) in normal-weight, 5.4% (4.3 M) in overweight, and 12.5% (6.6 M) in obesity group. Among diabetic patients, 6.1 million diabetic cases were associated with overweight or obese groups: 1.7 M (40%) in the overweight and 4.1 M (61%) in the obesity group. These extra diabetic cases resulted in $32.5 billion(B) direct medical costs of diabetes attributable to overweight ($9.1 B) and obese ($23.4 B). Diabetic men are more prevalent than women (2.3 M vs. 1.9 M) in overweight, resulting in cost attributable to overweight/obese of $5.7 B vs. $3.4 B. However, in obese group, diabetic women were more prevalent (3.4 M vs. 3.2 M with costs of $14.3 B vs. $9.4 B). **CONCLUSIONS:** Overweight and obesity are strongly associated with a rising prevalence of diabetes and an increased economic burden among people with diabetes. Initiation of aggressive intervention is recommended to increase patient awareness of importance in controlling their excess weights which cause extra economic burden of diabetes.

PDB19

IMPROVING THE MEASUREMENT OF THE COST OF DIABETES-RELATED COMPLICATIONS: RESULTS FROM A LARGE PROSPECTIVE COHORT STUDY

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Previous studies have shown that diabetes is a costly chronic condition due mainly to the treatment of complications that occur with increasing frequency and severity as the disease progresses. However, results vary greatly primarily because they rely on different modeling techniques, secondary data sources and/or on numerous assumptions to project potential long-term costs. **OBJECTIVES:** To estimate the short-term and long-term health care costs of diabetes and diabetes-related complications for a large cohort of patients followed prospectively. **METHODS:** All prevalent cases of diabetes in Ontario from 1992 to 2002 were followed for up to 10 years, until death, or out migration. This Ontario Diabetes Database was linked to various health care administrative datasets to develop comprehensive costing of diabetes and related complications. Seven diabetes-related complications were tracked over time (ischemic heart disease, myocardial infarction (MI), heart failure, stroke, amputation, renal failure, and blindness). Costs were compiled for outpatient services, prescription drugs, long-term care, homecare and hospital services for each year of follow-up. **RESULTS:** Of the 734,113 diabetics in the database, there were over 1.26 million non-fatal cardiovascular-related events during the 10-year time period. The average first year cost of amputation was $34,469 and $4,721 in subsequent years and renal failure was $22,116 in the first year and $10,033 in subsequent years. **CONCLUSIONS:** This study reports the results of a regression analysis on a large database to obtain estimates of the health care costs associated with diabetes-related complications. Costs are not simply the health care costs of complications; instead they reflect the increase in all health care costs in the year in which complications occur as well as in subsequent years. Accurate measurement of the short- and long-term health care costs associated with diabetes-related complications is necessary to help identify possible areas for priority setting in health care decision-making and research.